RIVERS AND FLOODS, MAY, 1920,

By ALFRED J. HENRY, Meteorologist.

The floods in progress in the Ohio and Mississippi and their tributaries at the close of April continued into May, and in the case of the lower Mississippi into June.

Floods which arose and receded wholly within the month of May were confined to the Gulf drainage, the rivers of southern Indiana, Arkansas, and the rivers of northern Louisiana draining into the Mississippi.

The most noteworthy of these floods occurred in the Tombigbee and Black Warrior Rivers of Alabama and Mississippi, the Red River of Texas-Louisiana, and the Trinity River of Texas. The usual details as to dates and crests reached will be found in the table which concludes this report.

The most serious result of these floods was the overflow of bottom lands at a time when farming operations should have been in progress. The deposits of silt on agricultural lands is, of course, a clear benefit; but, on the other hand, the time between planting and harvesting has been so much reduced in localities that there is some doubt as to whether a crop can be secured.

THE 1920 FLOOD IN THE MISSISSIPPI RIVER.

It will be convenient to consider the flood in the upper Mississippi as separate and distinct from that in the river below Cairo, Ill.

Upper Mississippi.—The melting of the accumulated snowfall of the winter in Minnesota and Wisconsin began rather suddenly in the latter part of March. The river at St. Paul was frozen until March 14, when the ice in the channel broke at a stage of 1.5 feet. The water from melting snow began to reach the rivers on the 16th, and there was a rather steady inflow until the 29th, when a crest stage of 13.6 feet was reached. The river fell very little on the 30th and 31st. A general rainstorm then passed across the watershed on April 1–2, adding materially to the flood flow in tributary streams and increasing the flood peak in the Mississippi so that by the 7th, when Dubuque was reached, a serious flood was in progress. The breaking of the levees at Muscatine, Iowa, caused the crest to move less rapidly and to diminish in magnitude. The Dubuque flood flattened out after reaching Keokuk, Iowa; meantime a third rainstorm of 48 hours' duration over Iowa, Wisconsin, and Illinois started a rise out of the streams of those States, which, reaching the Mississippi, then at a high stage, caused a second crest on that stream, beginning at Warsaw, Ill., on the 21st and reaching Alton, Ill., on the 24th. The Mississippi between Alton and Chester, Ill., did not reach the flood stage, and the only effect of the upper Mississippi water on the river below Cairo was to prolong the high stages then existing.

Lower Mississippi.—As previously noted (last REVIEW 48:234-236), the Mississippi at Cairo and below at the end of April was in flood. It fell to and below the flood stage at Cairo May 9, to below flood stage at Memphis on the 14th, Helena on the 18th, Greenville, Miss., on the 25th, and the end of the month remained above flood stage from Vicksburg to the mouth. It passed below flood stage at Vicksburg on June 13 and at New Orleans on June 23, thus concluding the most prolonged period of high water below Memphis ever before recorded. The flood was confined within the levees except for a small break about 75 miles below New Orleans that was soon closed.

There was some overflow from backwater in the lower St. Francis, the lower White and the lower Black River Valleys. Railroad traffic was not materially interrupted. In the overflowed regions planting was delayed and the season for maturing cotton and other crops has of course been shortened.

The following additional information was received subsequent to the preparation of the foregoing paragraph.

THE CAIRO DISTRICT.

* * * In the upper portions of the district, the floods receded in time for spring farm work, so that the losses of prospective crops were small. But as the waters reached the main stream at Cairo, the increments received one by one from the various tributaries and at times simultaneously from several sources served to produce a mighty stream, that took a long time to run off. On account of the long duration of the rise, the losses are much greater than they would have been otherwise.

The comparative table below shows the crest stages and durations of all floods at Cairo in which a stage of over 50 feet has been recorded.

Year.	Crest.	Date.	Days above flood stage.	Last date above flood stage.	Days above 40 feet.	Last date.
1882	51.9	Feb. 25, 26	57	Mar. 21	108	June 11
1883	52.2	Feb. 26, 27	[1] 22	Mar. 8	55	May 4
1884	51.8	Feb. 21–24	43	Apr. 6	58	Apr. 11
1886	51.0	Apr. 18, 19	[1] 22	Apr. 25	[1] 27	Apr. 27
1897	51.7	Mar. 25–28	[1] 49	Apr. 22	[1] 59	Apr. 27
1903	50.6	Mar. 15–17	27	Apr. 25	80	June 19
1907	50.4	Jan. 27	25	Mar. 29	53	Apr. 3
1912	54.0	Apr. 6, 7	48	May 13	68	May 17
1913	54.8	Apr. 4, 7	48	Apr. 22	63	Apr. 25
1916	53.4	Feb. 4	[1] 43	Feb. 16	67	Apr. 15
1920	51.4	Mar. 31	45	May 8	64	May 27

[1] Continuous; others are in two or more periods.

From the above table it is seen that the river remained above flood stage at Cairo till May 8th and above 40 feet till May 27, though not continuously so. There is considerable land below Cairo that overflows with a 40-foot stage at Cairo.

The long duration of the high water caused peculiarly distressing conditions in the Cairo drainage district, a leveed district just outside the northern limits of the city. Failure of the drainage pumps, or financial inability to operate them, caused a gradual rise of the seep water in the district, and the flooding for two months or more of a settlement of working people known locally as Future City, to a depth of from 1 to 3 feet. The track of the interurban railway was under water for a short distance. This is the first time in recent years that this area has ever been flooded without the breaking of levees, as in 1912 and 1913, when the entire district was submerged to a depth of 12 to 20 feet * * *.—*W. E. Barron.*

Estimated loss due to floods.

District and river.	Tangible property, bridges, roads, buildings, and levees.	Crops.		Farm machinery, live stock, cord-wood.	Suspension of business.	Estimated value of warnings.
		Matured.	Prospective.			
Houston, Tex.:						
Guadalupe [1]			$85,000	$2,000		$25,000
Trinity	$5,000	$13,500	1,217,000	3,500	$6,000	80,800
Dallas, Tex.:						
Trinity	50,000	3,000	701,500	70,000	42,000	145,000
Shreveport, La.:						
Red	150,000		675,000	15,000	200,000	150,000
Memphis, Tenn.:						
Mississippi	20,000		100,000		300,000	75,000
Terre Haute, Ind.:						
Wabash					3,000	15,000
Mobile, Ala.:						
Tombigbee			32,000	4,300	3,300	8,600
Cairo, Ill.:						
Mississippi	195,000	36,000	1,402,000	[2] 104,350	240,000	957,000
Total	420,000	52,500	4,202,000	199,150	794,300	1,456,400

[1] Acres overflowed: Guadalupe, 15,000; Trinity, 8,000—due to failure of levee.
[2] Add $56,700 as cost of feeding stock removed from ranges.

Flood stages for the month of May, 1920.

River and station.	Flood stage.	Above flood stages—dates. From—	To—	Crest. Stage.	Date.
ATLANTIC DRAINAGE.					
Connecticut:	*Feet.*			*Feet.*	
White River Junction, Vt.	13	(1)	2	18.4	[2] 24
Hartford, Conn.	16	(1)	2	20.2	[2] 16
Santee:					
Rimini, S. C.	12	(1)	4	17.2	[2] 9,10
Ferguson, S. C.	12	(1)	8	14.0	[2] 3
Ocmulgee:					
Abbeyville, Ga.	11	5	6	11.3	5,6
Do.	11	9	12	12.0	10,11
EAST GULF DRAINAGE.					
Apalachicola:					
Blountstown, Fla.	15	(1)	3	16.0	2
Do.	15	6	11	16.8	8
Do.	15	13	13	15.5	13
Do.	15	17	18	15.2	18
River Junction, Fla.	12	(1)	25	23.4	[2] 7
Chattahoochee:					
Alaga, Ala.	30	6	7	33.1	6
Alabama:					
Selma, Ala.	35	(1)	1	37.4	[2]30
Tombigbee:					
Demopolis, Ala.	39	(1)	11	61.6	[2] 10
Do.	39	18	22	41.4	19,20
Black Warrior:					
Tuscaloosa, Ala.	46	14	15	48.7	15
Pearl:					
Jackson, Miss.	20	(1)	10	25.0	7
Columbia, Miss.	18	(1)	5	22.8	1
West Pearl:					
Pearl River, La.	13	(1)	12	15.3	7
Do.	13	21	22	13.2	22
MISSISSIPPI DRAINAGE.					
Ohio:					
Henderson, Ky.	33	(1)	3	39.1	[2] 28,29
Evansville, Ind.	35	(1)	2	40.3	[2] 28
Mount Vernon, Ind.	35	(1)	4	40.5	[2] 29
Shawneetown, Ill.	35	(1)	5	43.4	1
Cairo, Ill.	45	(1)	8	49.5	1,2
Green:					
Lock No. 2, Rumsey, Ky.	34	(1)	2	35.5	29,30
Wabash:					
Vincennes, Ind.	14	(1)	2	20.0	[2] 26
Mount Carmel, Ill.	15	(1)	4	23.6	[2] 28,29
Do.	15	15	25	18.3	20
White:					
Decker, Ind.	18	(1)	1	24.0	[2] 28
Do.	18	19	20	18.1	19
West Fork White:					
Elliston, Ind.	19	14	15	21.3	15
Mississippi:					
Hannibal, Mo.	13	(1)	4	19.5	[2] 22
Do.	13	13	19	14.7	14
Louisiana, Mo.	12	(1)	5	17.5	[2] 23
Do.	12	13	18	13.7	14
Grafton, Ill.	18	(1)	7	22.4	[2] 25
Do.	18	14	22	19.0	17,18
Alton, Ill.	21	(1)	7	25.1	[2] 24
Do.	21	17	25	22.9	22
Chester, Ill.	27	21	25	27.8	22,23
Cape Girardeau, Mo.	30	20	27	31.7	23,24
New Madrid, Mo.	34	(1)	10	38.6	3
Memphis, Tenn.	35	(1)	13	40.3	[2] 5
Helena, Ark.	42	(1)	18	50.1	[2] 8,9
Do.	42	27	30	42.3	29
Arkansas City, Ark.	42	(1)	(3)	54.0	[2] 11
Greenville, Miss.	42	(1)	24	47.0	[2] 16
Vicksburg, Miss.	45	(1)	(3)	50.8	[2] 19–28
Natchez, Miss.	46	(1)	(3)	51.5	[2] 28
Baton Rouge, La.	35	(1)	(3)	41.5	22,24,25
Donaldsonville, La.	28	(1)	(3)	32.6	18,19, 23–25
New Orleans, La.	18	(1)	(3)	20.4	17,18
Des Moines:					
Tracy, Iowa.	14	14	15	14.4	14
Ottumwa, Iowa.	10	13	16	11.4	15
Illinois:					
Peru, Ill.	14	(1)	28	22.0	[2] 23
Henry, Ill.	7	(1)	(3)	16.2	[2] 24
Peoria, Ill.	16	(1)	30	22.9	[2] 25
Havana, Ill.	14	(1)	(3)	19.7	[2] 26–28
Beardstown, Ill.	12	(1)	(3)	21.3	[2] 27
Pearl, Ill.	12	(1)	(3)	19.1	[2] 27
Missouri:					
Running Water, S. Dak.	16	15	15	16.0	15
Blair, Nebr.	16	16	18	17.8	18
Omaha, Nebr.	19	18	18	19.5	18
St. Joseph, Mo.	12	19	21	12.7	20
Kansas City, Mo.	22	20	21	22.6	21
St. Charles, Mo.	25	21	25	26.0	21
James:					
Huron, S. Dak.	9	13	20	10.9	13
Grand:					
Brunswick, Mo.	10	4	4	10.0	4
Do.	10	16	(3)	13.1	22
Meramec:					
Pacific, Mo.	11	21	23	16.7	22
Glencoe, Mo.	15	22	22	20.2	22
Valley Park, Mo.	14	19	19	15.0	19
Do.	14	21	23	22.2	23

[1] Continued from April. [2] April. [3] Continued into June.

Flood stages for the month of May, 1920—Continued.

River and station.	Flood stage.	Above flood stages—dates. From—	To—	Crest. Stage.	Date.
MISSISSIPPI DRAINAGE—continued.					
Bourbeuse:	*Feet.*			*Feet.*	
Union, Mo.	10	21	22	15.2	22
Yazoo:					
Greenwood, Miss.	36	5	13	30.9	7,8
Do.	36	18	29	36.8	19–21
Yazoo City, Miss.	25	(1)	(3)	31.0	19–21
Tallahatchie:					
Swan Lake, Miss.	25	(1)	(3)	29.1	3–7
Ouachita:					
Arkadelphia, Ark.	18	12	14	22.6	12
Do.	18	17	18	20.2	17
Camden, Ark.	30	(1)	4	36.0	1
Do.	30	15	24	38.8	17
Monroe, La.	40	29	(3)	40.3	31
White:					
Calico Rock, Ark.	18	6	6	20.5	6
Do.	18	22	23	24.3	22
Batesville, Ark.	23	6	7	25.9	6
Do.	23	23	24	29.2	23
Newport, Ark.	26	24	25	26.9	25
Georgetown, Ark.	22	11	22	23.2	14
Do.	22	25	(3)	23.0	28
Black:					
Black Rock, Ark.	14	6	6	14.0	6
Do.	14	18	(3)	18.9	22
Cache:					
Patterson, Ark.	9	13	(3)	10.2	18–20
Red:					
Alexandria, La.	36	29	(3)	36.7	31
Index, Tex.	27	14	14	27.0	14
Do.	27	19	21	27.6	21
Fulton, Ark.	28	14	25	33.6	18,19
Springbank, Ark.	37	20	28	41.4	23
Little:					
Whitecliffs, Ark.	28	13	20	30.0	14,18
Sulphur:					
Finlay, Tex.	24	14	24	29.2	17
Ringo Crossing, Tex.	20	8	21	29.5	13
Cypress:					
Jefferson, Tex.	18	21	23	19.2	22
WEST GULF DRAINAGE.					
Atchafalaya:					
Simmesport, La.	41	(1)	(3)	46.7	21–28
Melville, La.	37	(1)	(3)	42.5	20–26
Trinity:					
Fort Worth, Tex.	20	10	12	29.9	11
Do.	20	15	20	26.0	16
Dallas, Tex.	25	6	24	39.7	12
Trinidad, Tex.	28	10	(3)	41.5	18
Long Lake, Tex.	40	20	24	45.9	22
Liberty, Tex.	25	30	(3)	25.4	31
Guadalupe:					
Gonzales, Tex.	22	16	18	33.4	16
Victoria, Tex.	16	17	22	24.6	20
PACIFIC DRAINAGE.					
Kings:					
Piedra, Calif.	12	19	22	13.9	20

[1] Continued from April. [2] April. [3] Continued into June.

MEAN LAKE LEVELS DURING MAY, 1920.

By UNITED STATES LAKE SURVEY.

[Dated: Detroit, Mich., June 4, 1920.]

The following data are reported in the "Notice to Mariners" of the above date:

Data.	Lakes.* Superior.	Michigan and Huron.	Erie.	Ontario.
Mean level during May, 1920:	*Feet.*	*Feet.*	*Feet.*	*Feet.*
Above mean sea level at New York	602.40	580.75	572.31	245.60
Above or below—				
Mean stage of April, 1920	+0.14	+0.21	+0.67	+0.05
Mean stage of May, 1919	+0.20	−0.63	−1.37	−1.67
Average stage for May last 10 years	+0.44	+0.17	−0.42	−1.10
Highest recorded May stage	−0.65	−2.77	−2.11	−3.35
Lowest recorded May stage	+1.58	+1.19	+1.00	+0.64
Average relation of the May level to—				
April level	.....	+0.3	+0.3	+0.3
June level	.....	−0.3	−0.2	−0.2

* Lake St. Clair's level: In May, 575.24 feet.